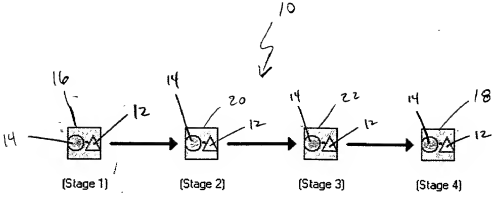
10
16
14
12
14
20
12
14
22
12
14
18
12
14
(Stage 1)
(Stage 2)
(Stage 3)
(Stage 4)

Figure 1

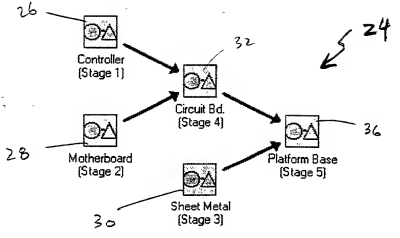
26
24
32
Controller
(Stage 1)
Circuit Bd.
(Stage 4)
36
28
Motherboard
(Stage 2)
Platform Base
(Stage 5)
Sheet Metal
(Stage 3)
30

Fig. 2

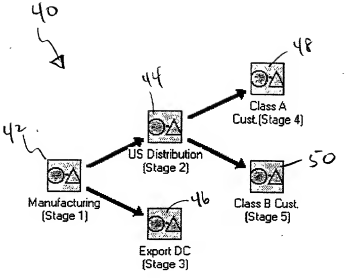
40
42
44
46
48
50
Manufacturing
(Stage 1)
US Distribution
(Stage 2)
Export DC
(Stage 3)
Class A
Cust.(Stage 4)
Class B Cust.
(Stage 5)

Fig. 3

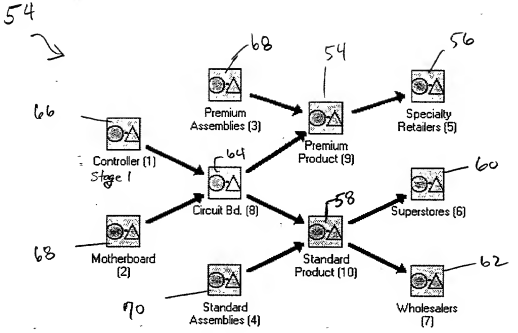
54
68
54
56
66
Premium Assemblies (3)
Premium Product (9)
Specialty Retailers (5)
Controller (1)
Stage 1
64
60
Circuit Bd. (8)
58
Superstores (6)
68
Motherboard (2)
Standard Product (10)
62
70
Standard Assemblies (4)
Wholesalers (7)

Fig. 4

ISSUED: 11/17/2009

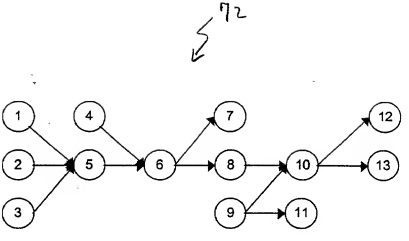

Fig. 5

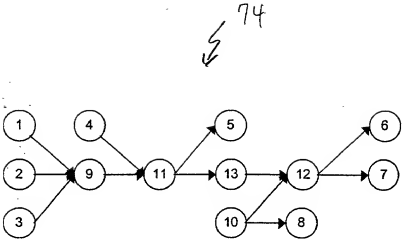

Figure 6

09/711,001

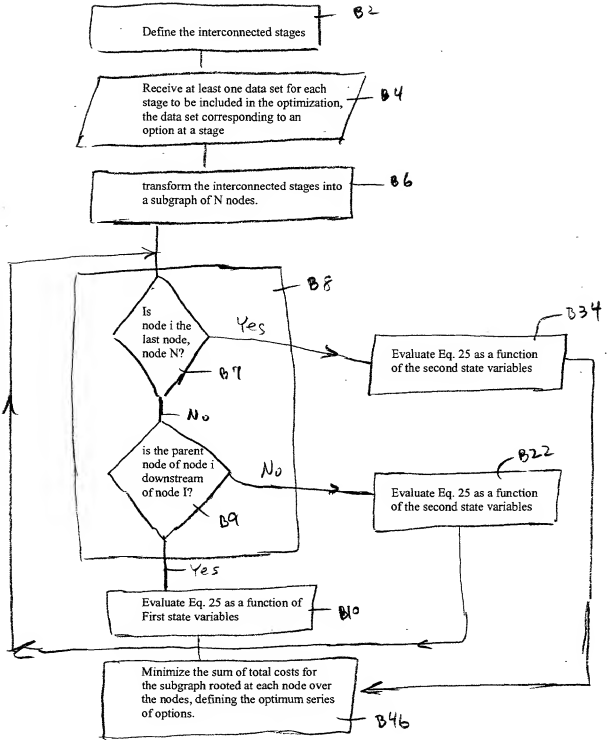

Fig. 7a

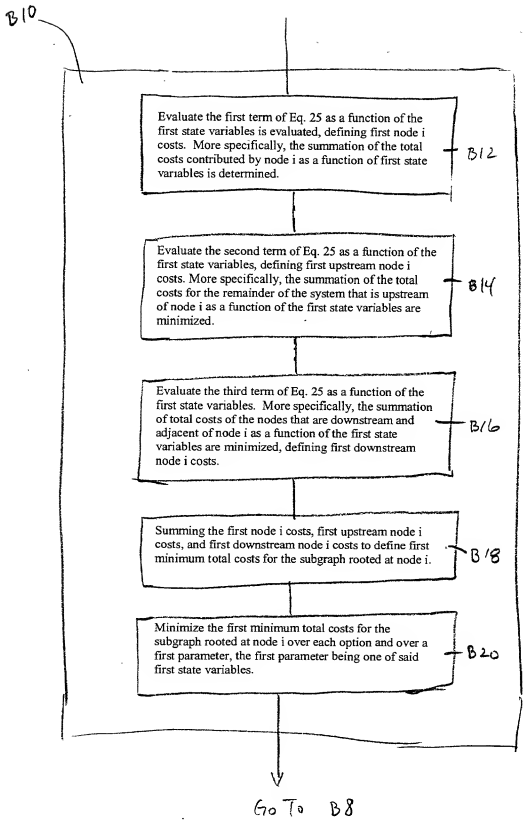
B10
Evaluate the first term of Eq. 25 as a function of the first state variables is evaluated, defining first node i costs. More specifically, the summation of the total costs contributed by node i as a function of first state variables is determined.
B12
Evaluate the second term of Eq. 25 as a function of the first state variables, defining first upstream node i costs. More specifically, the summation of the total costs for the remainder of the system that is upstream of node i as a function of the first state variables are minimized.
B14
Evaluate the third term of Eq. 25 as a function of the first state variables. More specifically, the summation of total costs of the nodes that are downstream and adjacent of node i as a function of the first state variables are minimized, defining first downstream node i costs.
B16
Summing the first node i costs, first upstream node i costs, and first downstream node i costs to define first minimum total costs for the subgraph rooted at node i.
B18
Minimize the first minimum total costs for the subgraph rooted at node i over each option and over a first parameter, the first parameter being one of said first state variables.
B20
Go To B8

Fig. 16

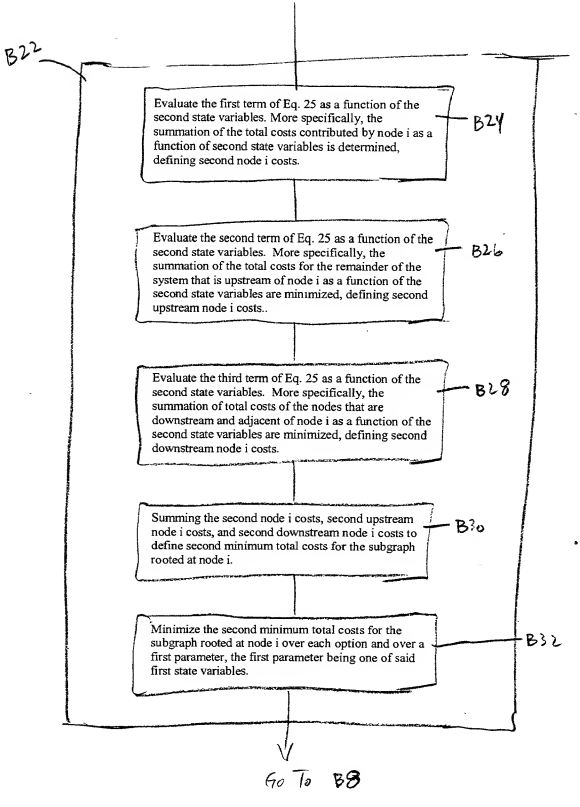
B22
Evaluate the first term of Eq. 25 as a function of the second state variables. More specifically, the summation of the total costs contributed by node i as a function of second state variables is determined, defining second node i costs.
B24
Evaluate the second term of Eq. 25 as a function of the second state variables. More specifically, the summation of the total costs for the remainder of the system that is upstream of node i as a function of the second state variables are minimized, defining second upstream node i costs..
B26
Evaluate the third term of Eq. 25 as a function of the second state variables. More specifically, the summation of total costs of the nodes that are downstream and adjacent of node i as a function of the second state variables are minimized, defining second downstream node i costs.
B28
Summing the second node i costs, second upstream node i costs, and second downstream node i costs to define second minimum total costs for the subgraph rooted at node i.
B30
Minimize the second minimum total costs for the subgraph rooted at node i over each option and over a first parameter, the first parameter being one of said first state variables.
B32
Go To B8

Fig. 7c

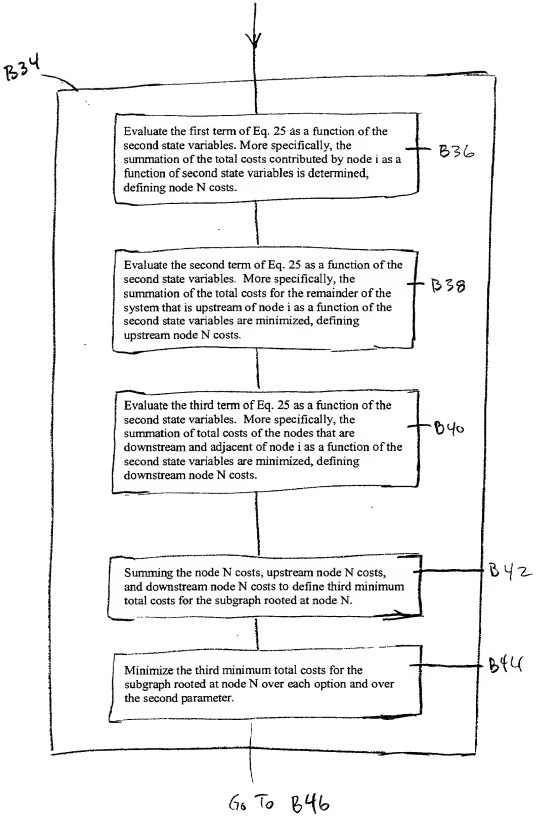
B34
Evaluate the first term of Eq. 25 as a function of the second state variables. More specifically, the summation of the total costs contributed by node i as a function of second state variables is determined, defining node N costs.
B36
Evaluate the second term of Eq. 25 as a function of the second state variables. More specifically, the summation of the total costs for the remainder of the system that is upstream of node i as a function of the second state variables are minimized, defining upstream node N costs.
B38
Evaluate the third term of Eq. 25 as a function of the second state variables. More specifically, the summation of total costs of the nodes that are downstream and adjacent of node i as a function of the second state variables are minimized, defining downstream node N costs.
B40
Summing the node N costs, upstream node N costs, and downstream node N costs to define third minimum total costs for the subgraph rooted at node N.
B42
Minimize the third minimum total costs for the subgraph rooted at node N over each option and over the second parameter.
B44
Go To B46

Fig. 7d

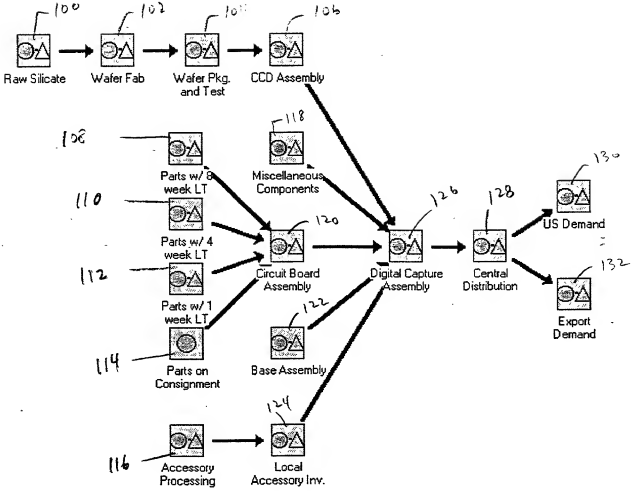
100
102
104
106
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
108
Parts w/ 8 week LT
118
Miscellaneous Components
110
Parts w/ 4 week LT
120
126
128
130
US Demand
112
Parts w/ 1 week LT
Circuit Board Assembly
Digital Capture Assembly
Central Distribution
132
Export Demand
122
114
Parts on Consignment
Base Assembly
124
116
Accessory Processing
Local Accessory Inv.

Fig. 8

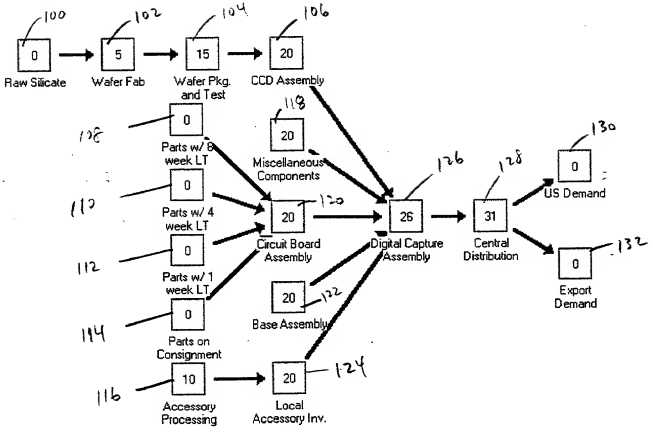
100
102
104
106
0
5
15
20
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
108
0
Parts w/ 8 week LT
110
0
Parts w/ 4 week LT
112
0
Parts w/ 1 week LT
114
0
Parts on Consignment
116
10
Accessory Processing
118
20
Miscellaneous Components
120
20
Circuit Board Assembly
122
20
Base Assembly
124
20
Local Accessory Inv.
126
26
Digital Capture Assembly
128
31
Central Distribution
130
0
US Demand
132
0
Export Demand

Fig. 9

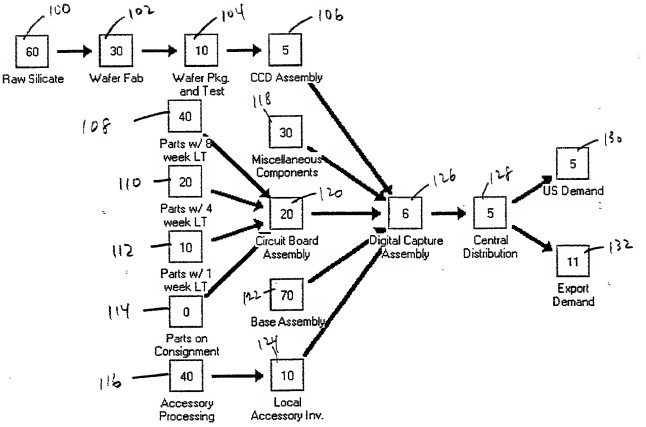
100
60
Raw Silicate
102
30
Wafer Fab
104
10
Wafer Pkg. and Test
106
5
CCD Assembly
108
40
Parts w/ 8 week LT
110
20
Parts w/ 4 week LT
112
10
Parts w/ 1 week LT
114
0
Parts on Consignment
116
40
Accessory Processing
118
30
Miscellaneous Components
120
20
Circuit Board Assembly
122
70
Base Assembly
124
10
Local Accessory Inv.
126
6
Digital Capture Assembly
128
5
Central Distribution
130
5
US Demand
132
11
Export Demand

Fig. 10

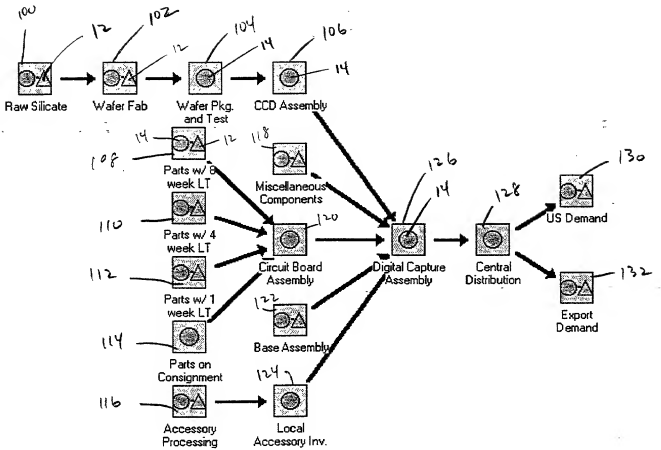
100
12
102
12
104
14
106
14
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
108
14
12
Parts w/ 8 week LT
118
Miscellaneous Components
110
Parts w/ 4 week LT
120
Circuit Board Assembly
112
Parts w/ 1 week LT
122
Base Assembly
114
Parts on Consignment
116
Accessory Processing
124
Local Accessory Inv.
126
14
Digital Capture Assembly
128
Central Distribution
130
US Demand
132
Export Demand

Fig. 11

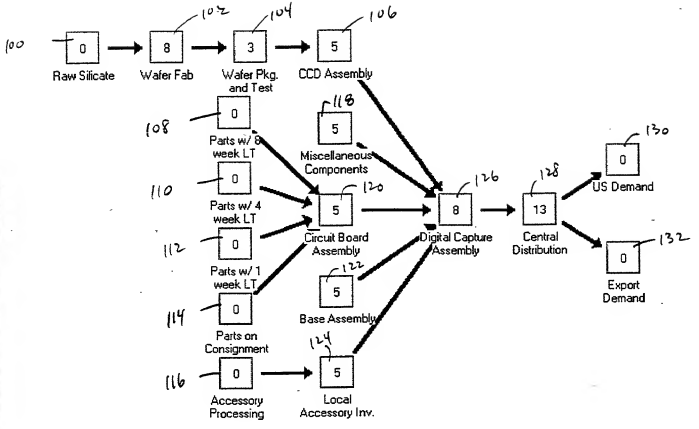
100
0
Raw Silicate
8
Wafer Fab
102
3
Wafer Pkg. and Test
104
5
CCD Assembly
106
108
0
Parts w/ 8 week LT
110
0
Parts w/ 4 week LT
112
0
Parts w/ 1 week LT
114
0
Parts on Consignment
116
0
Accessory Processing
5
Local Accessory Inv.
124
5
Miscellaneous Components
118
5
Circuit Board Assembly
120
5
Base Assembly
122
8
Digital Capture Assembly
126
13
Central Distribution
128
0
US Demand
130
0
Export Demand
132

Fig. 12

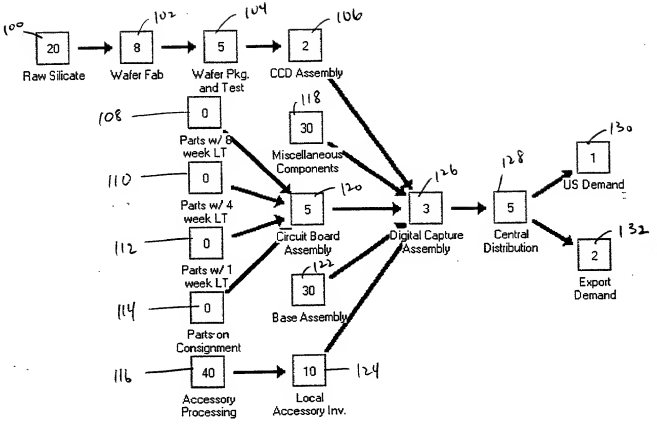
100
20
Raw Silicate
102
8
Wafer Fab
104
5
Wafer Pkg. and Test
106
2
CCD Assembly
108
0
Parts w/ 8 week LT
110
0
Parts w/ 4 week LT
112
0
Parts w/ 1 week LT
114
0
Parts on Consignment
116
40
Accessory Processing
118
30
Miscellaneous Components
120
5
Circuit Board Assembly
122
30
Base Assembly
124
10
Local Accessory Inv.
126
3
Digital Capture Assembly
128
5
Central Distribution
130
1
US Demand
132
2
Export Demand

Fig. 13

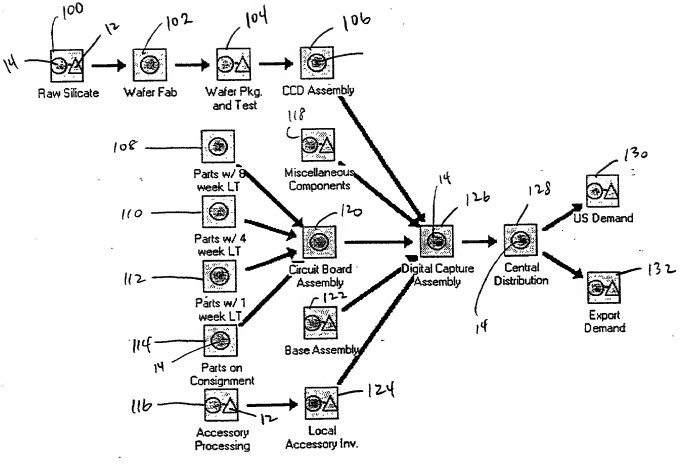
100
12
102
104
106
14
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
118
108
Parts w/ 8 week LT
Miscellaneous Components
14
126
130
128
110
Parts w/ 4 week LT
120
US Demand
112
Parts w/ 1 week LT
Circuit Board Assembly
Digital Capture Assembly
Central Distribution
132
122
114
14
Parts on Consignment
Base Assembly
Export Demand
14
116
12
124
Accessory Processing
Local Accessory Inv.

Fig. 14

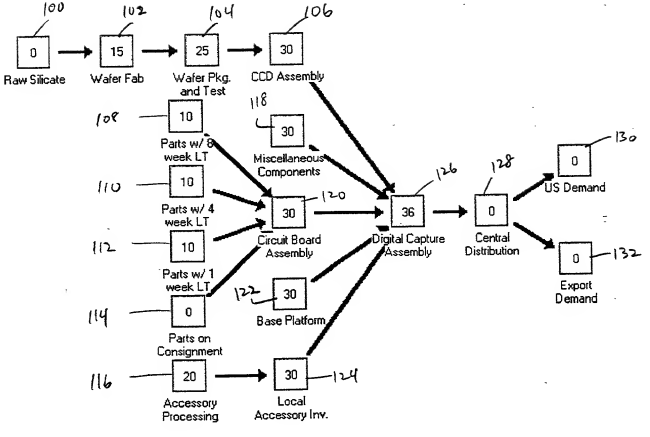
100
102
104
106
0
15
25
30
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
108
10
Parts w/ 8 week LT
118
30
Miscellaneous Components
110
10
Parts w/ 4 week LT
120
30
Circuit Board Assembly
112
10
Parts w/ 1 week LT
122
30
Base Platform
114
0
Parts on Consignment
116
20
Accessory Processing
30
124
Local Accessory Inv.
126
36
Digital Capture Assembly
128
0
Central Distribution
130
0
US Demand
132
0
Export Demand

Figure 15

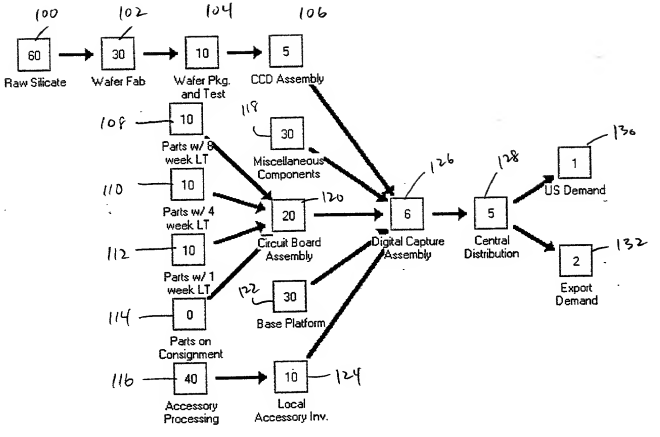
100
102
104
106
60
30
10
5
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
108
10
Parts w/ 8 week LT
118
30
Miscellaneous Components
110
10
Parts w/ 4 week LT
120
20
Circuit Board Assembly
126
6
Digital Capture Assembly
128
5
Central Distribution
130
1
US Demand
112
10
Parts w/ 1 week LT
132
2
Export Demand
122
30
Base Platform
114
0
Parts on Consignment
116
40
Accessory Processing
10
124
Local Accessory Inv.

Figure 16

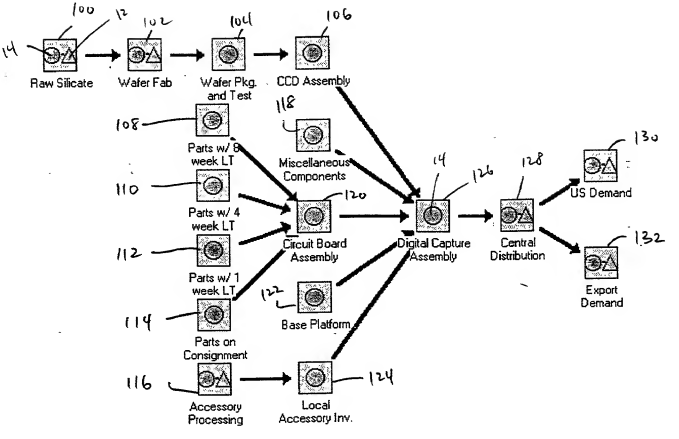
100
12
102
104
106
14
Raw Silicate
Wafer Fab
Wafer Pkg. and Test
CCD Assembly
118
108
Parts w/ 8 week LT
Miscellaneous Components
110
Parts w/ 4 week LT
120
14
126
128
130
US Demand
112
Parts w/ 1 week LT
Circuit Board Assembly
Digital Capture Assembly
Central Distribution
132
122
Export Demand
114
Parts on Consignment
Base Platform
116
124
Accessory Processing
Local Accessory Inv.

Figure 17

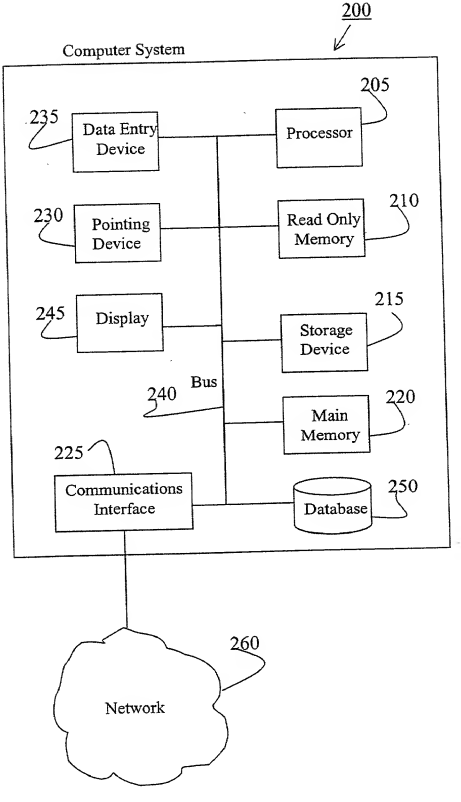
200
Computer System
205
235
Data Entry Device
Processor
230
Pointing Device
Read Only Memory
210
245
Display
215
Storage Device
240
Bus
Main Memory
220
225
Communications Interface
250
Database
260
Network

Fig. 18

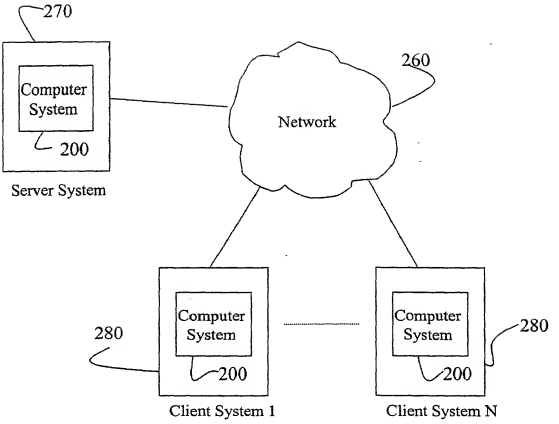
270
Computer System
200
Server System
260
Network
280
Computer System
200
Client System 1
Computer System
200
280
Client System N

Fig. 19

PO5001 6111260

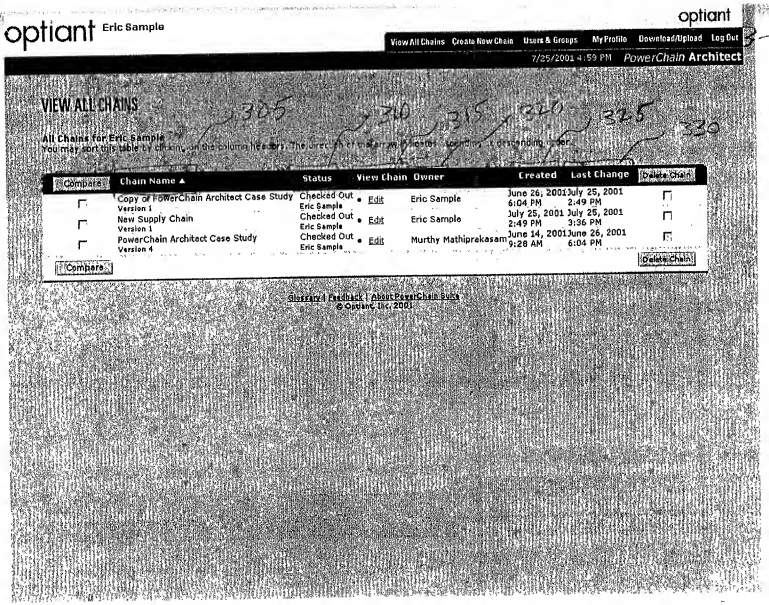

Fig. 20

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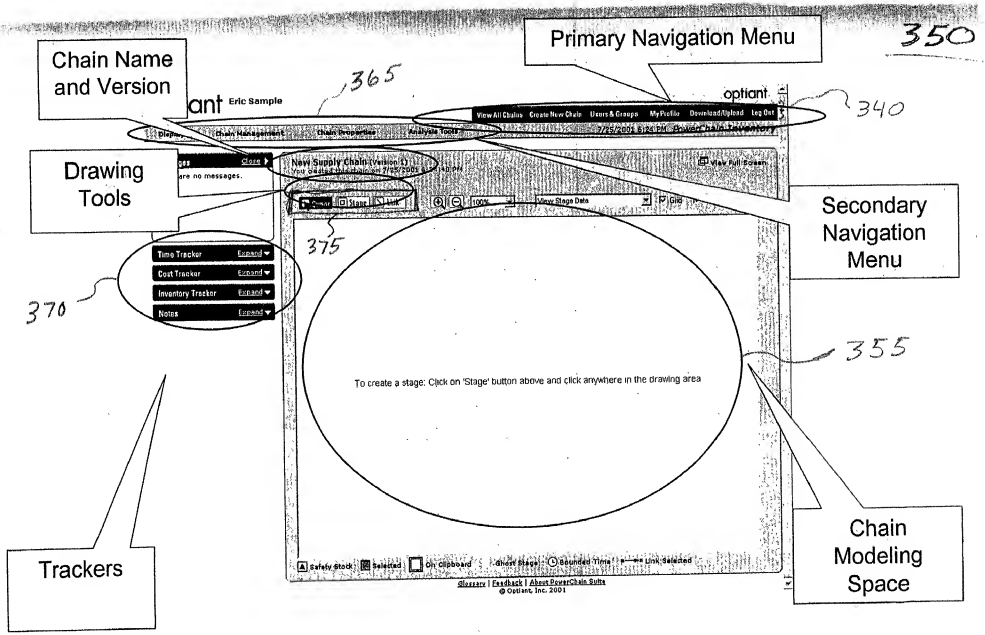

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Fig. 21

TOSOOI "nTTT2660

400

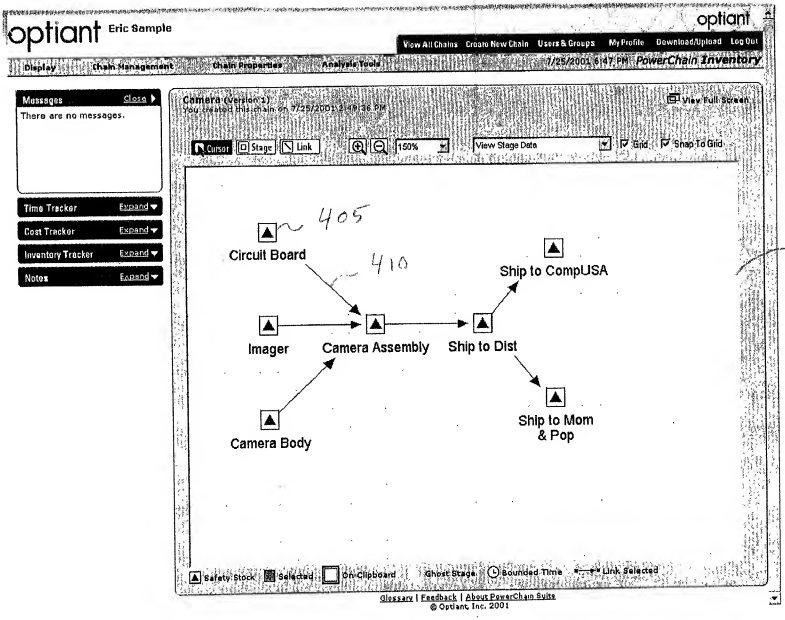

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Fig. 22

EDS001 HTTP2660

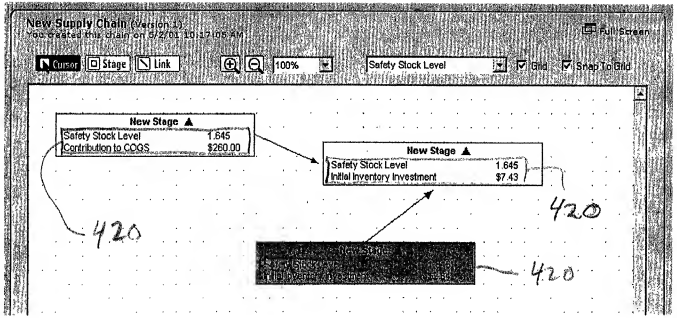

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Fig. 23

09711114-100501

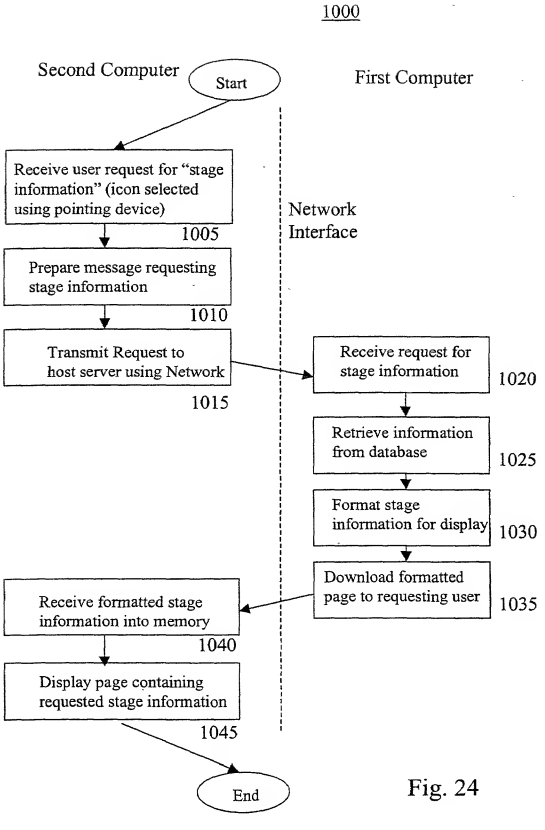
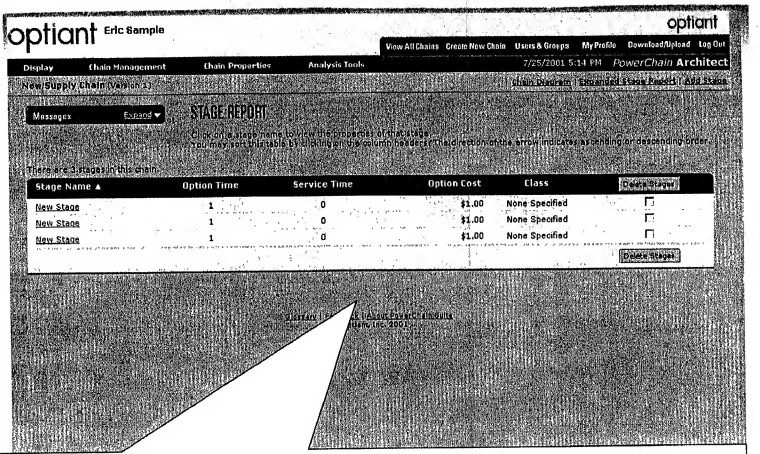


Fig. 24

TOSOOT: 07772660



- **The Stage Report is accessed by going to Display | Stage Report**
- **The Link Report is accessed by going to Display | Link Report**
- **Allows rapid entry of stage information and rapid deletion of stages and links respectively**

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500

Fig. 25

TOSOOT 11777660

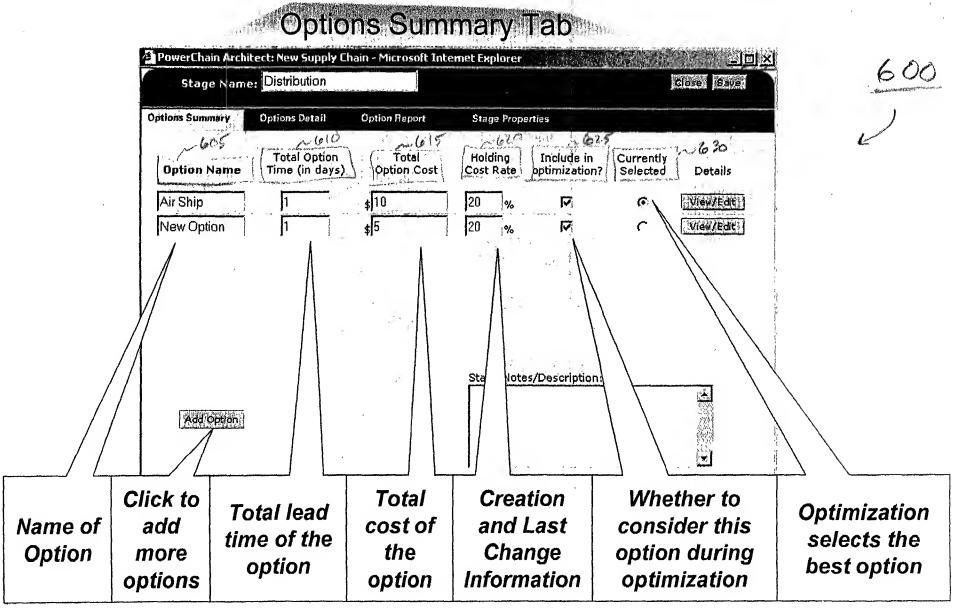

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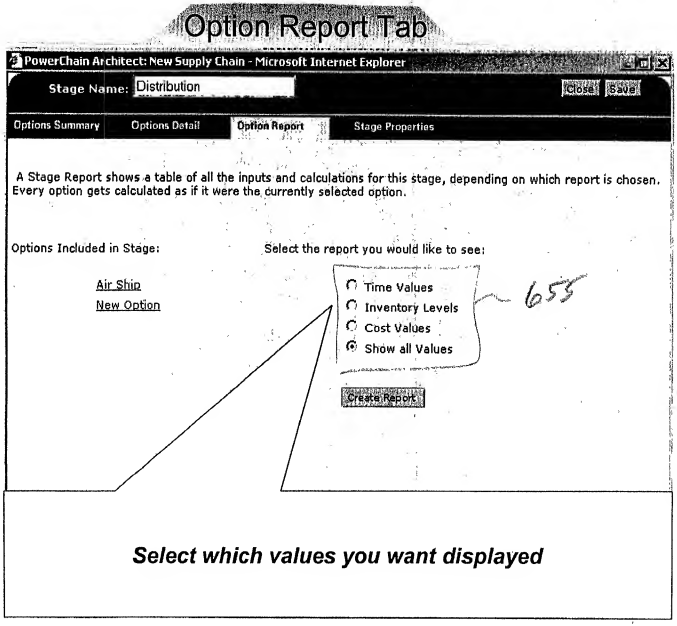
Fig. 26

TOSOOT "ATTTZ660



650

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Fig. 27

TOSOBT "HTTP/1.0"

Stage Properties Summary Tab

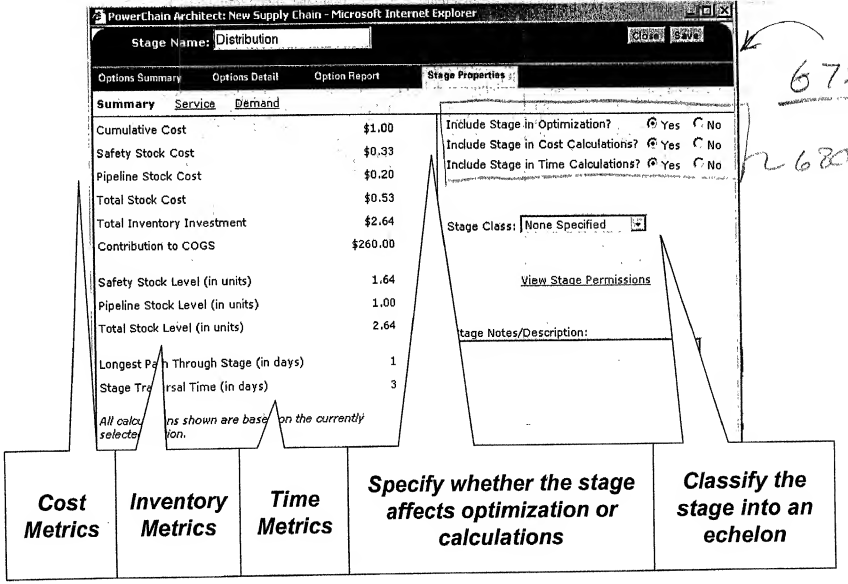

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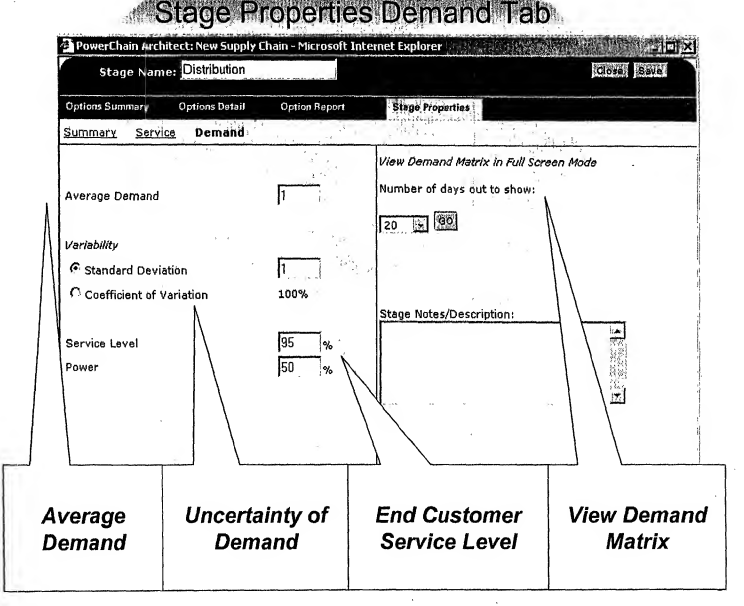
Fig. 28

US00[illegible]



700

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Fig. 29

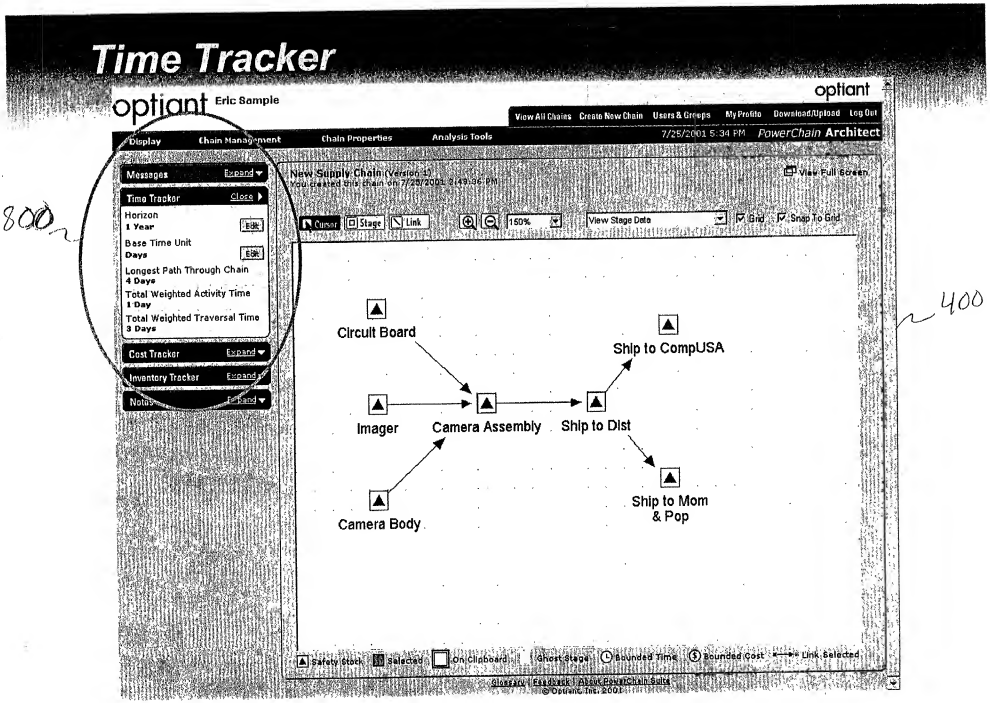

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Fig. 30

Cost Tracker

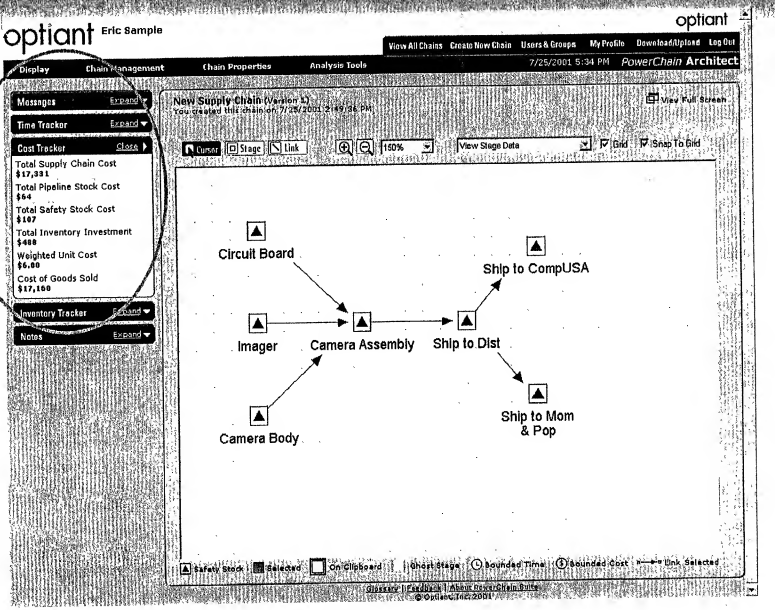

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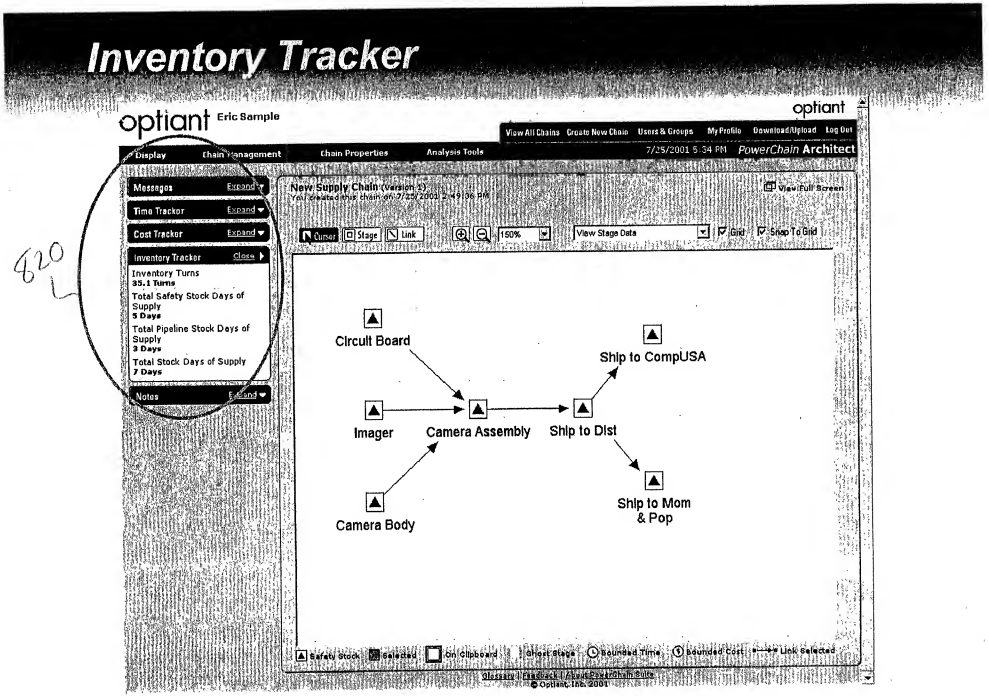
Fig. 31



420

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Fig. 32

TOSCOT 11/17/2660

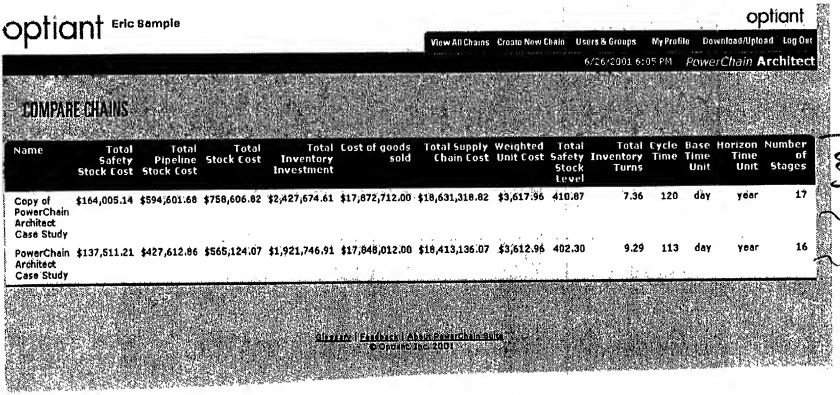

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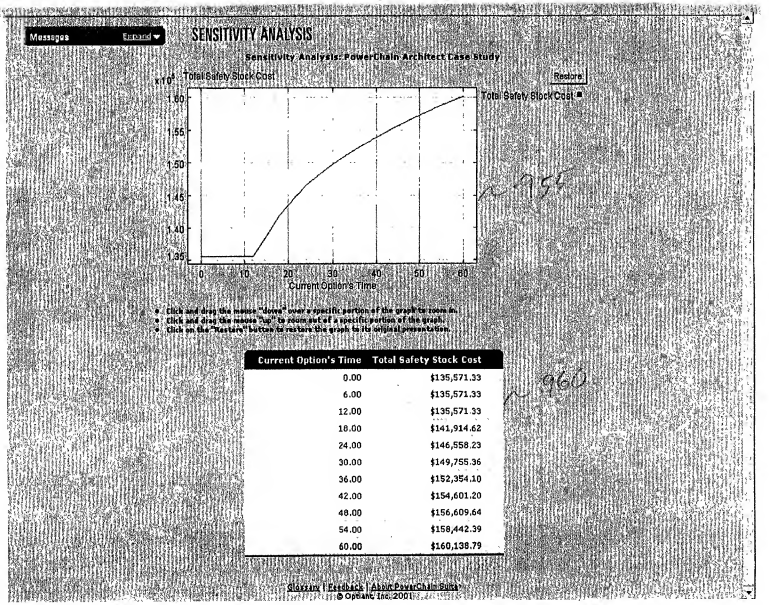
Fig. 33

TO5001 "4111266D



950

~ 955

~ 960

Fig. 34

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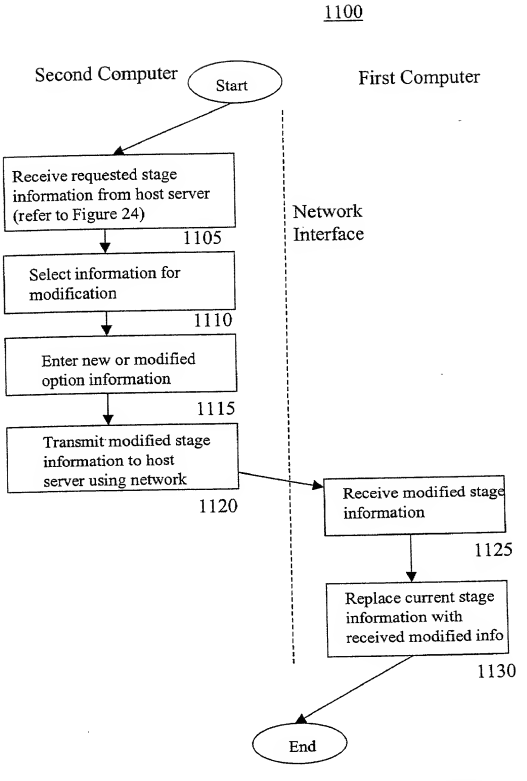

1100
Second Computer
Start
First Computer
Receive requested stage information from host server (refer to Figure 24)
1105
Network Interface
Select information for modification
1110
Enter new or modified option information
1115
Transmit modified stage information to host server using network
1120
Receive modified stage information
1125
Replace current stage information with received modified info
1130
End

Fig. 35

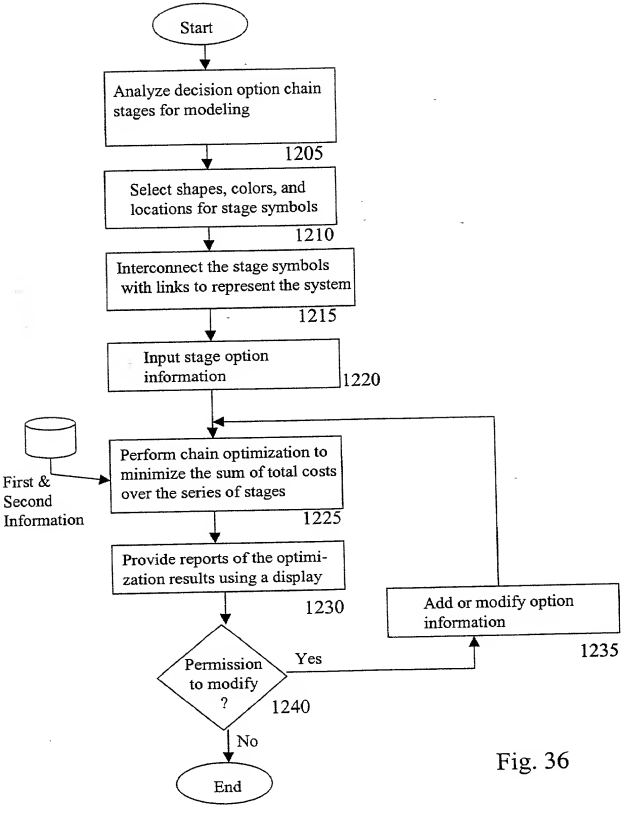

Start
Analyze decision option chain stages for modeling
1205
Select shapes, colors, and locations for stage symbols
1210
Interconnect the stage symbols with links to represent the system
1215
Input stage option information
1220
First & Second Information
Perform chain optimization to minimize the sum of total costs over the series of stages
1225
Provide reports of the optimization results using a display
1230
Add or modify option information
1235
Permission to modify ?
1240
Yes
No
End

Fig. 36

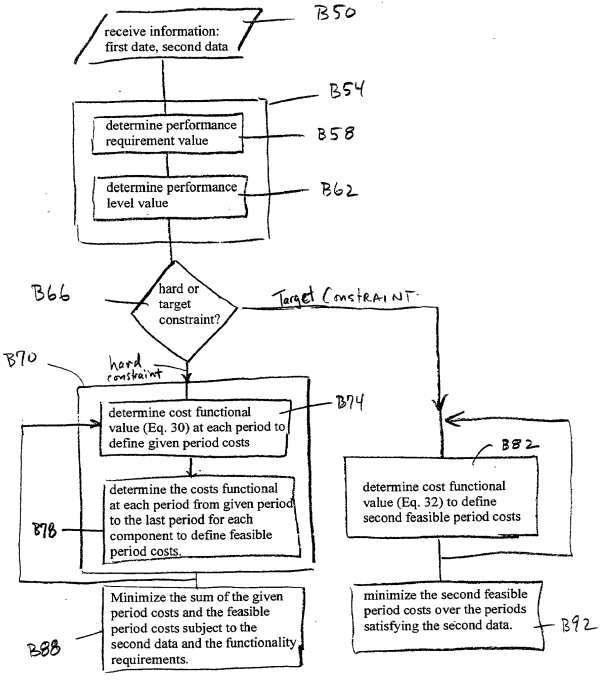

receive information: first date, second data
B50
B54
determine performance requirement value
B58
determine performance level value
B62
B66
hard or target constraint?
Target Constraint
B70
hard constraint
determine cost functional value (Eq. 30) at each period to define given period costs
B74
determine the costs functional at each period from given period to the last period for each component to define feasible period costs.
B78
B82
determine cost functional value (Eq. 32) to define second feasible period costs
Minimize the sum of the given period costs and the feasible period costs subject to the second data and the functionality requirements.
B88
minimize the second feasible period costs over the periods satisfying the second data.
B92

Figure 37

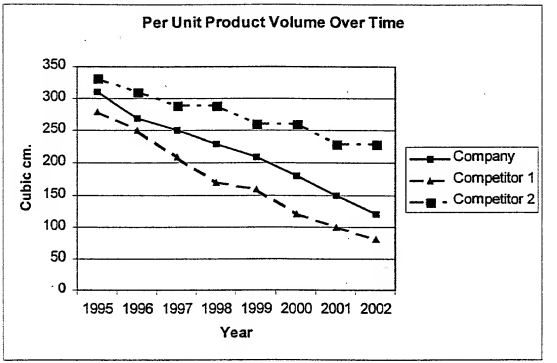
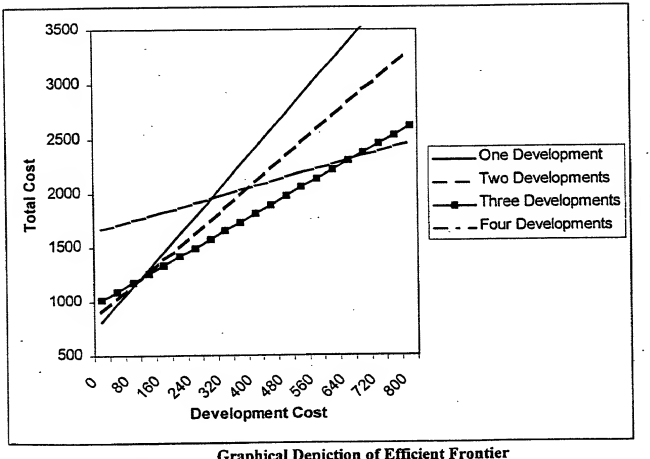


Fig. 38 **Chart showing product volumes over time**



Graphical Depiction of Efficient Frontier

Fig. 39: